

# **Best Management Practices Bitterroot National Forest**

## ***INTRODUCTION***

Best Management Practices (BMPs) are the primary mechanism to achieve water quality standards (Environmental Protection Agency 1987). This document describes the Forest Service BMP process in detail; it lists the key Soil and Water Conservation Practices (SWCP) selected for use on the Bitterroot National Forest and describes each SWCP that may be refined to address site-specific conditions. This process determines project level BMPs that protect beneficial uses and meet water quality objectives. It also cross-references the Montana Department of Natural Resource Conservation BMPs (State BMPs) that each SWCP addresses, contains information related to implementation and planning review, and lists the contractual clauses, or provisions, needed to make the SWCPs a legal requirement in a timber sale. The Forest Service timber sale contract has specific clauses, referred to as "provisions." This document also addresses the effectiveness of selected BMPs.

BMPs include, but are not limited to, structural and non-structural controls, operations, and maintenance procedures. BMPs are applied before, during, and after pollution-producing activities to reduce or eliminate the introduction of pollutants into receiving waters (40 CFR 130.2, EPA Water Quality Standards Regulation). Usually BMPs are applied as a system of practices rather than a single practice. Site-specific conditions that reflect natural background conditions and technical and economic feasibility are the basis for selecting the applicable BMPs.

The Bitterroot National Forest Plan states "Soil and Water Conservation practices are part of project design and implementation to ensure soil and water resource protection" (Forest Service Handbook 2509.22, Forest Plan, pg II-25). Montana State Water Quality Standards require the use of Reasonable Land, Soil, and Water Conservation Practices (analogous to BMPs) as the controlling mechanism for nonpoint source pollution. Use of BMPs is required in the Memoranda of Understanding between the Forest Service and the State of Montana as part of our responsibility as the Designated Water Quality Management Agency on National Forest System (NFS) lands.

The Practices described herein are tiered to the practices in FSH 2509.22. They were developed as part of the NEPA process, with interdisciplinary involvement, and meet Forest and State water quality objectives.

In addition to the state BMP and SWCP requirements, the Inland Native Fish Strategy Environmental Assessment and Finding of No Significant Impact (INFISH) amended the Bitterroot National Forest Plan. INFISH outlines management objectives, standards and guidelines, and monitoring requirements for protecting aquatic resources in western Montana and other areas. The Como Forest Health EIS details INFISH requirements as incorporated in project design and analysis. For the purpose of this document, all state SMZ requirements are met or exceeded by meeting INFISH Riparian Habitat Conservation Area (RHCA) standards and guidelines.

## **BMP IMPLEMENTATION PROCESS**

In cooperation with the State, the USDA Forest Service primary strategy to control nonpoint source pollution is implementation of preventive practices (BMPs) determined necessary to protect identified beneficial uses.

The Forest Service Nonpoint Source Management System consists of:

1. BMP selection and design based on site-specific conditions; technical, economic and institutional feasibility; and the designated beneficial uses of the streams.
2. BMP application before, during and after land management activities;
3. BMP monitoring to ensure the practices are implemented and effectively protect designated beneficial uses.
4. Evaluation of BMP monitoring results.
5. Applying monitoring results to current/future activities and BMP design. The District Ranger is responsible for insuring that this BMP feedback loop is implemented on all projects.

**BMP Selection and Design.** Forest Plans identify water quality goals. These goals meet or exceed applicable legal requirements, including State water quality regulations, the Clean Water Act, and the National Forest Management Act. Project environmental assessments are tiered to Forest Plans during the NEPA process.

The project interdisciplinary team selects the appropriate BMPs. After identifying the designated beneficial uses for the associated streams, the initial list of BMPs is developed from the Forest Plan standards and guidelines, Forest Service handbooks, and special provisions identified by watershed and fisheries specialists for sensitive areas.

BMP selection and design are dictated by water quality objectives, soils, topography, geology, vegetation, and climate. Environmental impacts and water quality protection options are evaluated and alternative mixes of practices are considered. A final collection of practices are selected that not only protect water quality but meet other resource needs. These final selected practices constitute the BMPs.

**BMP Application.** The BMPs are translated into contract provisions, special use permit requirements, project plan specifications, and so forth. This ensures that the operator or person responsible for applying the BMP is actually required to apply it. Specialists review timber sale contracts to insure needed resource protection is included as appropriate contract provisions. Pre-sale crews and engineers take the site-specific BMP prescriptions from plan-to-ground during harvest unit and road layout through marking, tagging, flagging, tagline surveys, and locating road drainage and stream crossings. This is when final adjustments to fit the BMP prescriptions to the site are made before implementing the resource activity.

**BMP Monitoring.** During the course of project activities (e.g. timber harvest or road construction), timber sale administrators, engineer representatives, and resource specialists ensure that the BMPs are implemented according to plan. BMP implementation monitoring is done before, during, and after resource activity implementation. This monitoring answers the question: Did we do what we said we were going to do? Once BMPs have been implemented, further monitoring is done to evaluate if BMPs are effective in meeting management objectives and protecting water beneficial uses. State water quality standards, including beneficial uses, are one of the evaluation criteria monitored.

**BMP Monitoring Evaluation.** The technical evaluation of monitoring described above determines how effectively BMPs protect or improve water quality. Water quality standards and conditions of the beneficial uses are one evaluation criteria. If the evaluation indicates that water quality standards are not met or beneficial uses are not protected, corrective action considers the following three components:

- A. The BMP: Is it properly designed, technically sound, and effective? Is there a better practice, which is technically sound and feasible to implement?
- B. The implementation program or processes: Was the BMP applied as designed? What factors were involved in partial, or lack of, implementation – inadequate personnel,

- equipment, funds, or training?
- C. State water quality criteria: Do the parameters and criteria used for effectiveness evaluation adequately reflect changes in water quality and beneficial uses?

**Feedback.** Response to BMP evaluation is both short- and long-term. Where corrective action is needed, immediate response is undertaken. Responses may include: modification of the BMP, modification of the activity, or ceasing the activity. BMP evaluations over the long-term may indicate trends that require responses or changes in management direction.

## ITEMS COMMON TO ALL SOIL AND WATER CONSERVATION PRACTICES

**Responsibility for Implementation:** The District Ranger is responsible for ensuring the factors identified in the following SWCPs are incorporated into the correct timber sale contract provision, that the provisions are included in the timber sale contract, or public works contract through the inclusion of specific contract provisions, and implemented on the ground. Specific timber sale contract provisions are often included in table A-1 for further reference, and the provisions start with a "B" or a "C" followed by a number (e.g. B6.4). If the contract is a Stewardship Contract, instead of a traditional Timber Sale Contract, the provision numbers will vary. For example in the Timber Sale Contract, "C6.4# Conduct of Logging" controls logging operations. In the Stewardship Contract the exact same provision is "K-G.4# Conduct of Logging". In general, all of the provisions found in the Timber Sale Contract are also found in the Stewardship contract, under a different numbering scheme. For the purpose of Appendix A, the provisions referred to will be from the Timber Sale Contract.

Unless otherwise specified, the Presale Forester is responsible for insuring that the factors identified in the following SWCPs are incorporated into the correct timber sale contract B or C provision and that the provisions are included in the timber sale contract.

The Timber Sale Administrator or Engineering Representative are the official representatives of the Contracting Officer (COR) on timber sale and public works contracts, respectively. They are responsible for properly administering the contract provisions.

**Monitoring:** As part of administering the timber sale or public works contracts, the Timber Sale Administrator and Engineering Representative monitor BMP implementation. Resource Specialists also monitor SWCPs and provide feedback to the contract administrators.

## SOIL AND WATER CONSERVATION PRACTICES IN THE COMO FOREST HEALTH PROJECT

### FORMAT OF THE SOIL AND WATER CONSERVATION

In this section, we list the SWCPs in a table followed by a more detailed description of their application to the Como Forest Health project. The table lists the class of SWCP, cross-references State BMPs, the timber sale contract provision that implements the SWCP, whether the SWCP applies to the project, and how we implement or review the SWCP. The following definitions assist with reviewing the table:

#### **CLASSES OF SWCP (BMP)**

A = Administrative

G = Ground Disturbance Reduction  
E = Erosion Reduction

S = Stream Channel Protection/Stream

Sediment Reduction

W = Water Quality Protection

**ACRONYMS**

SAM = Sale Area Map

SMZ = Streamside Management Zone

TSA = Timber Sale Administrator

TSC = Timber Sale Contract

**REFERENCES**

- SWCP (Soil and Water Conservation Practice) number – From R1-R4 Soil and Water Conservation Practices Handbook, Forest Service Handbook 2509.22
- State BMP reference number from MT DNRC 2006 Best Management Practices for Forestry
- Applicability – does this BMP/SWCP apply to this project?
- Planning Review – how is the BMP implemented or addressed in environmental planning for this project?

The detailed description of the SWCPs applicable to the Como Forest Health project follows the format outlined below. Montana State BMPs are not referenced in the detailed descriptions.

Title: Includes the SWCP number and a brief title

Objective: Describes the SWCP objective(s) and the goals of implementation.

Effectiveness: Provides a qualitative assessment of expected effectiveness that the applied measure will have on preventing or reducing impacts on water quality. The SWCP is rated High, Moderate, or Low based on the following criteria:

- A. Literature/Research (must be applicable to area)
- A. Administrative studies (local or within similar ecosystem)
- B. Experience (judgment of an expert by education and/or experience)
- C. Fact (obvious by reasoned [logical] response)

Implementation: Identifies the range of site-specific water quality protection measures to be implemented and how the practices are expected to be applied.

**Table A-1: Soil and Water Conservation Practices on the Bitterroot National Forest and in Como Forest Health Analysis Area.**

CLASS	SWCP #	STATE BMP REF.	VCP TITLE	TSC PROVISION	APPLICABLE? Y/N	IMPLEMENTATION/PLANNING REVIEW
<b>SECTION 11 WATERSHED MANAGEMENT</b>						
A	11.01	IV.A.1	Determination of Cumulative Watershed Effects	NA	Y	Completed during project planning, refer to DEIS
E	11.03	III.D.10	Watershed Improvement of Roads, OHV Trails and Skid Trails	C5.419# C6.632# C6.633#	Y	See watershed improvement list for project
A	11.05	IV.A.1	Wetlands Analysis and Evaluation	B6.61 B6.62 SAM B6.62 C6.62#	Y	Stream and wetland SMZs are physically included within the larger RHCA buffer required by INFISH. Only activity improving the quality of wetlands, such as aspen enhancement, will be allowed within the wetland RHCA. No machinery will be allowed within the RHCA, except on existing roads and landings.
A	11.09	III.E.6	Management by Closure to Use	C5.41#	Y	Specifics of closures and affected roads identified in TS Contract and enforced by TSA (timber sale administrator)
W	11.13		Sanitary Guidelines for Construction of Temporary Labor, Spike, Logging, Fire Camps and Similar Installations	B6.2	Y	Applicable only if camps are established during logging operation.
<b>SECTION 13 VEGETATION MANIPULATION</b>						
G	13.02	IV.A.1., 2, 4, 5 IV.B.1	Slope Limitations for Tractor Operation (14.07)	C6.4#	Y	Ground-based skidding will be restricted to slopes less than 40%, as stated in the Forest Plan. This is facilitated through cutting unit design..
G	13.03	IV.A.1 IV.B.1& 2	Tractor Operation Excluded from Wetlands, Bogs, & Wet Meadows	B6.61 B6.422 B6.62 SAM C6.62#	Y	Logging Equipment will be excluded from SMZs.
E	13.04	IV.B.6 IV.C.1	Revegetation of Surface Disturbed Areas	B6.6 C6.601# C6.633#	Y	Disturbed sites will be revegetated with a seed mix identified by Forest Botanist.
E	13.06	IV.A.1, 4	Soil Moisture Limitations for Tractor Operations	B6.6	Y	Sale administrator will monitor soil moisture conditions, and control activity as needed to protect soils.
A	13.07		Pesticide Use Planning	NA	Y	Incorporated in project planning and design. Addresses in terms of impacts, mitigation.
W	13.08		Apply Pesticides According to Label and EPA Registration Directions	NA	Y	Mitigation and project design.
W, A	13.09		Pesticide Application Monitoring and Evaluation	NA	Y	Mitigation and contract administration
W, A	13.10		Pesticide Spill Contingency Planning	NA	Y	Project design and mitigation.

CLASS	SWCP #	STATE BMP REF.	VCP TITLE	TSC PROVISION	APPLICABLE? Y/N	IMPLEMENTATION/PLANNING REVIEW
W	13.11		Cleaning and Disposal of Pesticide Containers and Equipment	NA	Y	Project design, mitigation, compliance with laws, regulation and proper pesticide application.
W	13.12		Protection of Water, Wetlands, and Riparian Areas During Pesticide Spraying	NA	Y	Project design, mitigation compliance with laws, regulation and proper pesticide application.
	13.13		Controlling Pesticide Drift During Spray Application	NA	Y	Project design, mitigation compliance with laws, regulation and proper pesticide application.
<b>SECTION 14 TIMBER HARVEST</b>						
A	14.02	IV.A.2-6	Timber Harvest Unit Design (14.08, 14.10)	SAM	Y	Anticipated Detrimental Soil Disturbance (DSD) has been analyzed in the EIS, and cutting boundaries have been designed to avoid impacts to RHCA/SMZs. Refer to DEIS for mitigation and discussion on unit design.
A	14.03	IV.A.1 – 4, 6 & B.1 - 3	Use of Sale Area Maps for Designating Soil and Water Protection Needs	B1.1, B.42, B6.5, B6.42, B6.61, B6.62 C6.4	Y	SAM will identify protected stream courses, wetlands and riparian areas, slumps and other areas excluded from harvest
A	14.04	IV.A.1	Limiting the Operating Period of Timber Sale Activities	B6.65, B6.6, B6.31, B6.311, B6.312, C6.316#	Y	Normal operating seasons will be identified in the TSC. TSA will monitor conditions and enforce as needed.
A	14.05	IV.A.1	Protection of Unstable Areas	C6.4#	N	No unstable (mass-movement-prone) areas located during planning or fieldwork
A	14.06	II. (all) III.D.10	Streamside Management Zone Rules, Riparian Area Designation	B6.5, B1.1 C6.50#	Y	SMZ's are typically more narrow than RHCA's that will be marked and excluded from harvest.
G	14.07	IV.A.2& 4	Determining Tractor Logable Ground	B1.1, B6.42	Y	Initially determined during project planning in IDT discussions. Will be field checked during cutting unit layout. Refer to mitigation, Soils and Watershed reports as well as SWCPs 13.02, 13.03, 14.02, 14.03, 14.05, 14.06.
E	14.08	IV.A.2, 4, 5	Tractor Skidding Design	B6.422, C6.4#	Y	Unit Table lists units appropriate for ground based yarding.
E	14.09	IV.A.1, 2	Suspended log Yarding in Timber Harvesting	B6.42, C6.4#	Y	BMP describes requirements for suspended (cable, helicopter) yarding. Applicable to all non-tractor units, determined by field review during planning stages.
A	14.10	IV.A.6, B.4	Log Landing Location and Design	B6.422, C6.422	Y	Potential landings have been identified and reviewed on the ground for accessibility. Landings locations will be selected that require the least amount of excavation and have the least potential for erosion. Locations are agreed upon by the purchaser and Forest Service. Mitigation describes treatment after use.

CLASS	SWCP #	STATE BMP REF.	VCP TITLE	TSC PROVISION	APPLICABLE? Y/N	IMPLEMENTATION/PLANNING REVIEW
E	14.11	IV.B.4	Log Landing Erosion Prevention and Control	B6.6, B6.311 B6.64, C6.6, C6.601#	Y	BMP describes design of landings and post- use treatment to minimize erosion
E	14.12	IV.B.5& 6	Erosion Prevention and Control Measures During Timber Sale Operations	B6.6, B6.64, B6.311, C6.4, C6.6, C6.601#	Y	Erosion control revegetation will occur in a manner approved by the forest botanist.
E	14.15	IV.B.1, 5 & 6, IV.A.5	Erosion Control on Skid Trails	B6.6, B6.311, B6.65, B6.66, C6.4, C6.6, C6.601#	Y	Water bar spacing identified in BMP, limit summer skidding based on soil moisture to reduce compaction and displacement.
E	14.16	IV.A.1& 5	Meadow Protection During Timber Harvesting	B1.1, B5.1, B6.422, B6.61, C6.4#, C6.66	Y	Equipment will be prohibited from entering meadows.
S	14.17	IV.A.1 & 5	Stream course Protection (Implementation and Enforcement)	B1.1, B6.5, B6.6, C6.50#, C6.6	Y	Stream courses will be identified on SAM, excluded from equipment entry (SMZ and INFISH), and excluded from treatment area—   Unless otherwise identified in the EIS, Ground based logging equipment will be prohibited from entering SMZ and RHCAs.
E	14.18	III.E.2, 8, IV.A.5, IV.B.4, 6	Erosion Control Structure Maintenance	B6.67	Y	TSC requires maintenance of erosion control structured by purchaser and is monitored by TSA
A	14.19	III.E.7, IV.A.5, B.4, 5, 6	Acceptance of Timber Sale Erosion Control Measures Before Sale Closure	B6.36	Y	Direction according to TSC and certification by TSA required prior to sale closing.
E	14.20	IV.C (all)	Slash Treatment in Sensitive Areas	SAM B6.5 C6.50# B6.7 C6.7 C6.71 C6.753	Y	Mechanized equipment will not be allowed to operate in Sensitive Areas as described in SWCP 14.20.
A	14.22		Modification of the Timber Sale Contract	B2.37 B8.3	Y	Within TSC provision to modify contract for resource reasons.
A	14.23	IV.C.1	Reforestation Requirement	internal	N	No reforestation needs identified.
G	NA	IV.C.3,4, 6	On-site Large Woody Residue and Soil Litter Retention	C6.7# C6.406#	Y	Silvicultural prescriptions specify the amount of woody materials to be left on site following treatments and is displayed in mitigation table. Soil scientist involved in final recommendations.
G	NA	VI. (all)	Winter Logging	C6.4#	Y	Purchaser may work in qualifying winter conditions at their discretion. See mitigations in EIS for details.
SECTION 15 – ROADS AND TRAILS						
S	15.02	III.A,B,C III.D.5, IV.A.5	General Guidelines for the Location and Design of Roads and Trails	B5.2	Y	Applies to any road design and location on the project area. A 124 state permit is required for any stream channel modification.

CLASS	SWCP #	STATE BMP REF.	VCP TITLE	TSC PROVISION	APPLICABLE? Y/N	IMPLEMENTATION/PLANNING REVIEW
E	15.03	III.C.1, 7	Road and Trail Erosion Control Plan	B6.31, B6.5, B6.6, C5.31#, C6.6, C6.601#, C6.632#, C6.633#	Y	Seeding and fertilizing of disturbed sites would occur, effectiveness monitoring would determine if reseeding is necessary. Maintenance of haul routes would occur as directed by TSA and TSC. Refer to mitigations in EIS.
E	15.04	III.D.4 III.E.4,7	Timing of Construction Activities	B6.31 B6.311	Y	TSA will monitor conditions and restrict when needed to prevent adverse results.
E	15.06	III.D.7, III.E.2	Mitigation of Surface Erosion and Stabilization of Slopes	C6.601#	Y	Seeding and fertilizing of disturbed sites would occur, effectiveness monitoring would determine if reseeding is necessary. Erosion control needs determined by TSC and TSA. Refer to mitigations in EIS.
E	15.07	III.C.1,5 III.D.2, III.E.2	Control of Permanent Road Drainage	B/C6.6 B6.65 C6.601 C5.31# C6.661	Y	Standard road maintenance and BMP work will be covered under C5.31#.
E	15.08	III.D.1	Pioneer Road Construction	B5.2, B6.5, B6.6, B6.62, C5.1, C5.23#, C6.6, C6.62#	Y	A 124 state permit is required for any stream channel work.
E	15.09	III.D.2 III.E.7	Timely Erosion Control Measures on Incomplete Road and Stream crossing Projects	B6.6 B6.66 C6.6 C5.23#	Y	As directed by TSA and TSC
E	15.10	III.D.3,8	Control of Road Construction Excavation & Side cast Material	B5.2, B5.21,	Y	Controlled through TSC and engineering representative (ER).
S	15.11	VII.A. (all)	Servicing and Refueling of Equipment	B6.34 B6.341 B6.342	Y	Servicing of equipment will be excluded from RHCA/ SMZs.
S	15.12	III.A.5 IV.B.1	Control of Construction in Riparian Areas	B6.5 B6.61, C6.51, and C6.52. 124 permit	Y	124 state permit required for stream channel modification.
S	15.13	III.E.5	Controlling In- Channel Excavation	C6.36, C6.52, and B6.5	Y	124 state permit required.
S	15.14	IV.A.(all) V.C.5	Diversion of Flows Around Construction Sites	B6.5	Y	124 permit required.
S	15.15	IV.A.(all) V.B.2, V.C.4	Stream crossings on Temporary Roads	B5.1 B6.5 C5.1	Y	This BMP would cover temporary road construction stream crossings. No temporary roads planned in RHCA's
S	15.16	IV.A.(all) V.C.(all)	Bridge and Culvert Installation (Disposition of Surplus Material and Protection of Fisheries)	B5.21, B6.5	Y	Culvert replacement planned on 5621 road, Lick creek tributary.
E	15.18	III.D.6,8	Disposal of Right- of-Way and Roadside Debris	B5.21, B6.5	Y	Appropriate mitigation for temporary road construction, and pre-haul maintenance.



CLASS	SWCP #	STATE BMP REF.	VCP TITLE	TSC PROVISION	APPLICABLE? Y/N	IMPLEMENTATION/PLANNING REVIEW
E	15.21	III.D.1 III.E.1,2	Maintenance of Roads	C5.12 C5.31# C5.316# C5.314# C5.312# C5.41	Y	Road maintenance plan identified in TSC.
E	15.22	III.D.7	Road Surface Treatment to Prevent Loss of Materials	C5.31# (T-103) C5.314#	Y	As directed by TSC.
E	15.23	III.D.6 IV.B.1	Traffic Control During Wet Periods	B5.12, and C5.12	Y	As directed by TSA.
E	15.24	III.E.3,4 VI.B.2	Snow Removal Controls	C5.316#	Y	Refer to TSC and monitored by TSA.
E	15.25	III.E.8	Obliteration of Temporary Roads	C6.632#	Y	Refer also to mitigation in DEIS for temporary roads.
<b>SECTION 18 FIRE SUPPRESSION AND FUELS MANAGEMENT</b>						
A	18.02	IV.C.2	Formulation of Fire Prescriptions	NA	Y	Rx have been developed in IDT setting with specialist input and consideration of habitat type, existing vegetation, fuel loadings and position on landscape.
E	18.03	IV.C.8	Protection of Soil & Water from Prescribed Burning Effects	NA	Y	Burning should only occur during Rx window to meet prescribed fire intentions. See soil mitigations in DEIS.
E	18.04	None	Minimizing Watershed Impacts from Fire Suppression Efforts	NA	Y	Should a prescribed fire escape, resource advisor would advise suppression team of sensitive areas and resource concerns.
E	18.05	None	Stabilization of Fire Suppression Related Watershed Damage	NA	Y	This practice would be applied in the event a prescribed fire escaped containment. A resource advisor would inform the fire suppression team of sensitive areas and resource concerns.

## SWCP DESCRIPTIONS

### **PRACTICE 11.07 - OIL AND HAZARDOUS SUBSTANCE SPILL CONTINGENCY**

### **PRACTICE 15.11 - SERVICING AND REFUELING OF EQUIPMENT**

**OBJECTIVE:** To minimize contamination of waters from accidental spills of fuels, lubricants, bitumen, raw sewage, wash water, and other harmful materials by prior planning and development of Spill Prevention Control and Countermeasure Plans.

**EFFECTIVENESS:** High based on reason, logic response, and observation.

**IMPLEMENTATION:** The Contracting Officer, Engineering Representative, or Timber Sale Administrator would designate the location, size, and allowable uses of service and refueling areas. They would also be aware of procedures to follow in case of a hazardous spill, as outlined in the Forest Hazardous Substance Spill Contingency Plan (SWCP 11.07). Contract provisions CT6.34 Sanitation and Servicing and BT6.341 Prevention of Oil Spills are included in all timber sale contracts. BT6.341 requires the purchaser to prepare a spill prevention control and countermeasure plan, which shall meet applicable EPA requirements, including certification by a registered professional

engineer. This requirement applies when the total oil or oil products storage exceeds 1,320 gallons, or when any single container exceeds 660 gallons.

**PRACTICE 13.02 - SLOPE LIMITATIONS FOR TRACTOR OPERATION****PRACTICE 13.06 - SOIL MOISTURE LIMITATIONS FOR TRACTOR OPERATION****PRACTICE 14.02 – TIMBER HARVEST UNIT DESIGN****PRACTICE 14.07 – DETERMINING TRACTOR LOGGABLE GROUND****PRACTICE 14.08 – TRACTOR SKIDDING DESIGN**

**OBJECTIVE:** To insure that timber harvest unit design would secure favorable conditions of water flow, maintain water quality and soil productivity, and reduce soil erosion and sedimentation during and following thinning and fuel reduction.

**EXPLANATION:** The recommendations in these practices are based on soil conditions and slope, which relate to erosion hazard. The objective of these practices is to minimize erosion by limiting tractor yarding to appropriate terrain and soils, and by designing skidding patterns to best fit the terrain. General slope limitations for tractor logging are 35% standard and 20% adverse (uphill).

All tractor units would be logged using designated skid trails. Equipment would occasionally leave the trails to access trees or accomplish other activities.

Logging may occur in either winter or summer (subject to applicable timing restrictions required for other resources, such as wildlife). The goal is to occupy less than 15 percent of the harvest area, which includes soil disturbance from skid trails, temporary roads, and landings associated with either past activities or proposed activities.

All of the proposed units have less than 15 percent existing detrimental soil disturbance. Most of the existing soil disturbance is from old skid trails or roads, some of which can be reused.

All existing roads and skid trails would be reused to the extent feasible unless doing so would adversely affect soil, water, or other resources. If roads or trails cannot be reused, their extent must be considered when laying out additional skid trails.

To the extent possible, logging in summer would occur when the soils are drier than field capacity nearing the permanent wilting point, as determined by the hand feel method and observations of grasses and forbs as described in the Project Record.

Winter logging requires a combination of soil frost and snow depth sufficient to protect the soil from detrimental disturbance

Timber Sale Administrators will monitor soil moisture conditions prior to allowing equipment to begin operations in summer and monitor snow and temperature conditions prior to winter logging. This monitoring must be documented in the Timber Sale Daily Report.

All burn units would be ignited when burning conditions would maintain soil quality within the range of historic burns.

If monitoring after project implementation indicates that detrimental soil disturbances for a given treatment unit exceed or equal 15 percent, then all or a portion of the following actions will be used to begin the restoration of soil quality. Restoration would occur on sites with a high amount of detrimentally disturbed ground such as designated skid trails and landings:

Scarify heavily used skid trails and landings with the teeth on an excavator bucket to a depth of 2 to 4 inches. Subsoiling with a grapple rake (SGR) or excavator bucket (SEB) may be necessary if it is determined that subsurface compaction is root limiting. In these cases, the subsoiling would decompact the skid trail to the appropriate depth to allow for productive vegetative growth.

Plant Montana-certified weed free native grasses on the scarified soils as recommended by the Forest Botanist.

Plant native shrubs where needed to augment natural vegetation and scarification.

The site condition will be used to determine which of the above mitigations would be used. These mitigations do not result in instant restoration of detrimentally disturbed soils; rather they begin the restoration process.

All temporary roads (constructed and re-used existing templates) will be reclaimed after use, as soon as logistically practicable. The reclaiming of temporary roads will include removing any installed culverts or temporary bridges, re-contouring the entire road template to natural ground contour, and, to the extent feasible, placing the top soil back on the soil surface. Decompaction of the road bed will be completed on existing templates where topsoil materials are no longer available. Woody material should be placed on the recontoured/decompacted road where quantities in the immediate vicinity allow. The road reclamation will be completed with fertilization and seeding as specified by the Soil Scientist and Forest Botanist.

EFFECTIVENESS: High - Experience of Bitterroot NF Soil Scientist and Botanist; based on reason, logic and observation.

IMPLEMENTATION: Project Specific BMPs would be designated on the Timber Sale Area Map and implemented primarily with the use of timber sale contract provision CT6.4, or other appropriate contract provisions.

#### **PRACTICE 14.03 - USE OF SALE AREA MAPS FOR DESIGNATING SOIL AND WATER PROTECTION NEEDS**

#### **PRACTICE 14.16 – MEADOW PROTECTION DURING TIMBER HARVESTING**

#### **PRACTICE 14.17 STREAM COURSE PROTECTION (IMPLEMENTATION & ENFORCEMENT)**

OBJECTIVE: To delineate the location of protection and special treatment areas and ensure their recognition, proper consideration, and protection during project activities.

EFFECTIVENESS: High; the hydrologist, fisheries biologist, and soil scientist review the timber sale area map; based on reason, logic, and observation.

IMPLEMENTATION: The following features would be designated on the Timber Sale Area Map:

Stream courses (perennial and intermittent) to be protected under contract provision BT6.5 Special treatment zones (STZS) as needed as per contract provision CT6.62 (site-specific wetland protection measures).

#### **PRACTICE: 14.06 - RIPARIAN AREA DESIGNATION**

OBJECTIVE: To minimize the adverse effects on Riparian Areas from adjacent logging and related land disturbance activities.

EFFECTIVENESS: High; local monitoring, and experience of the soil scientist, hydrologist, sale administrator and interdisciplinary team (ID Team) are that these requirements and criteria are highly effective in minimizing soil erosion.

IMPLEMENTATION: The Riparian Area requirements are identified during the environmental analysis by the ID Team. The timber sale project is designed to include site specific recommendations for the prevention of sedimentation and other stream damage from logging activities. The environmental analysis will provide for planning of harvests to insure long-term health and revegetation of the Riparian Areas, while meeting shading, debris recruitment, and other management objectives. As

appropriate, monitoring and evaluation will be identified in the environmental analysis documentation. The Presale Forester is responsible for the inclusion of the Riparian Areas in the Timber Sale Contract and on the Sale Area Map.

The certified Sale Administrator is responsible for contract compliance during harvest operations. Riparian area widths are determined by INFISH criteria and exceed MT DNRC requirements.

#### **PRACTICE 14.09 – SUSPENDED LOG YARDING, LANDING LOCATION AND DESIGN**

**OBJECTIVE:** To protect soil from excessive disturbance and accelerated erosion and to maintain the integrity of the Riparian Area and other sensitive watershed areas.

**EFFECTIVENESS:** High; Local monitoring, and experience of the soil scientist, hydrologist, sale administrator, and ID Team members indicate these requirements and criteria are highly effective in minimizing soil erosion.

**IMPLEMENTATION:** During the environmental analysis, the ID Team identifies areas where suspended log yarding is needed. The specific systems are included in the contract and designated on the Sale Area Map by the Presale Forester. The Timber Sale Administrator oversees the project operation using the guidelines and standards established in the timber sale contract with reference to the environmental analysis documentation.

Suspended log yarding includes all yarding systems in which logs are partially or wholly suspended off the ground. These systems include high-lead, skyline, helicopter, and balloon yarders. The systems are used on steep or unstable slopes and in Riparian Areas where tractors cannot operate. All of these systems cause less soil disturbance because there is less contact between the soil and heavy machinery. In most cases, these systems require fewer roads because they have a longer “reach.” Fewer roads and less soil disturbance causes less soil and water resource impacts.

#### **PRACTICE 14.10 - LOG LANDING LOCATION AND DESIGN**

#### **PRACTICE 14.11 - LOG LANDING EROSION PREVENTION AND CONTROL**

#### **PRACTICE 14.12 - EROSION PREVENTION AND CONTROL MEASURES DURING TIMBER SALE OPERATIONS**

#### **PRACTICE 14.15 - EROSION CONTROL ON SKID TRAILS**

**OBJECTIVE:** To protect water quality by minimizing erosion and subsequent sedimentation derived from log landings and skid trails.

**EFFECTIVENESS:** High; experience of the soil scientist, hydrologist, sale administrator, and ID Team indicate that these requirements and criteria are highly effective in minimizing soil erosion.

**IMPLEMENTATION:** Standard Timber Sale provision BT6.6 requires the purchaser to conduct operations in a reasonable fashion to minimize erosion. Additionally, specific erosion requirements defined in provisions such as CT6.4, CT6.6, CT6.601, CT6.62, and CT6.623. Project-specific BMPs would be implemented primarily through timber sale contract provision CT6.4, or other appropriate contract provisions.

The following criteria would control or minimize erosion from landings and skid trails:

1. Landings:

- Maintain landings during periods of use in a manner that prevents debris and sediment from entering any streams.
- Landings would drain in a direction and manner that would minimize erosion and preclude sediment delivery to any stream.
- Standard timber sale contract provision B6.64 Landings requires that after landings have

served the Purchaser's purpose, the Purchaser shall ditch or slope them to allow water to drain or spread.

- Landings would be seeded as needed with a mix approved by the Forest Botanist.
2. Skid Trails:
- Skid trails would be water-barred; the Timber Sale Administrator would designate the trail location and spacing (SWCP 15.25).
  - Skid trails likely to produce sediment would be covered with slash and/or seeded with a mix of seed and fertilizer specified in CT6.601

#### **PRACTICE 14.18 - EROSION CONTROL STRUCTURE MAINTENANCE**

**OBJECTIVE:** To ensure that constructed erosion control structures are stabilized and working effectively.

**EFFECTIVENESS:** High; experience of the soil scientist, sale administrator, and ID Team members is that the following requirement is highly effective in minimizing soil erosion.

**IMPLEMENTATION:** Timber Sale Contract provision, BT6.66, requires that during the period of the contract, the Purchaser shall provide maintenance of soil erosion control structures constructed by the Purchaser until they stabilize. The Forest Service may agree to perform such structure maintenance under BT4.228 Cooperative Deposits, if requested by the Purchaser, subject to agreement on rates. Should the Purchaser fail to do seasonal maintenance work, the Forest Service may assume the responsibility and charge the Purchaser accordingly. The Timber Sale Administrator would ensure that erosion control structures are working effectively.

#### **PRACTICE 14.19 - ACCEPTANCE OF TIMBER SALE EROSION CONTROL MEASURES BEFORE SALE CLOSURE**

**OBJECTIVE:** To assure the adequacy of required erosion control work on timber sales.

**EFFECTIVENESS:** High; reasoned, logical response or observation.

**IMPLEMENTATION:** Timber Sale Contract provision BT6.36, requires that upon the Purchaser's written request and assurance that contract work has been completed; the Forest Service shall perform an acceptance inspection. For erosion control work, "acceptable" means only minor deviation from established standards, provided no major or lasting impact is caused to soil and water resources. The Timber Sale Administrator would not accept as complete, any erosion control work that does not meet this criteria.

#### **PRACTICE 15.02 - GENERAL GUIDELINES FOR THE LOCATION AND DESIGN OF ROADS AND TRAILS**

**OBJECTIVE:** To locate and design roads and trails with minimal soil and water resource impact while considering all design criteria.

**EXPLANATION:** Several considerations must be incorporated into the location and design of roads and trails. These factors directly affect protection of water quality, soil, and other resource values. The following coordination instructions apply to all transportation activities:

1. Area Transportation Analysis and project planning will be completed using an interdisciplinary process, and the appropriate NEPA document will be prepared and tiered to the Forest Plan. Area Transportation analysis is an extremely effective tool to reduce overall road mileages and minimize potential resource impacts.

2. Location, design, and construction activities shall utilize appropriate technical resource staffs, when needed, to evaluate effects of transportation development and operations, and recommend mitigating measures to minimize adverse impacts.
  - Roads and trails will be located and designed to facilitate completion of the transportation system, serve specific resource management needs, fit the terrain, and minimize damage to improvements and resources. Fragile, unstable, sensitive, or special areas should be avoided.
  - Roads and trails should be designed based on traffic and safety requirements of anticipated use and to meet the overall transportation plan. The design shall incorporate features to prevent or minimize soil movement and sedimentation as well as undue disruption of water flow.
  - Stream crossing structures shall be designed to provide the most efficient drainage facility consistent with resource protections, importance of the road, legal obligations, and total costs. The design may involve a hydrologic analysis to determine runoff rates and volumes, flood conditions, velocities, scour, open channel shapes, approach topography, materials-foundation condition, and fish passage, as required. An economic comparison of various flood frequencies versus structure sizes and types is also considered.
  - Locate and design roads and trails to drain naturally by appropriate use of out-sloping or in-sloping with cross drainage and grade changes, where possible. Relief culverts and roadside ditches will be designed whenever reliance upon natural drainage would not protect the running surface, excavation, or embankment. Road and trail drainage should be channeled to effective buffer areas to maximize sediment deposition prior to entry into live water.

**EFFECTIVENESS:** High for new permanent or temporary roads; reasoned, logical response, or observation.

**IMPLEMENTATION:** During the environmental analysis, the ID team ensured that management needs, objectives, requirements, and controls are incorporated in the location and design of roads and trails. Mitigation measures needed to protect soil and water resources were identified in the NEPA process. Contract provisions will be prepared that meet the soil and water resource protection requirements.

### **PRACTICE 15.03 - ROAD AND TRAIL EROSION CONTROL PLAN**

**OBJECTIVE:** To prevent, limit, and mitigate erosion, sedimentation, and resulting water quality degradation prior to the initiation of construction and maintenance activities through effective contract administration during construction and timely implementation of erosion control practices.

**EXPLANATION:** Land disturbing activities usually result in at least short-term erosion. Poorly designed, located, constructed, and maintained roads and trails are usually responsible for the majority of stream sedimentation problems associated with forest management practices. By effectively planning for erosion control, sedimentation can be minimized.

Roads and trails require a variety of erosion control measures. Many erosion control practices not only protect water quality but also maintain road prism integrity, reduce maintenance costs, and improve traffic characteristics. The location of the road or trail with respect to streams, beneficial uses of that water, soil, and geologic information and other site factors govern the degree of stabilization required. Stabilization usually includes a combination of practices that promotes the re-establishment of vegetation on exposed slopes, provides physical protection to exposed surfaces, prevents the downslope movement of soil, or controls road drainage.

Since a newly constructed road is most susceptible to erosion from seasonal precipitation, the timing of erosion control practices is of primary concern. Those practices that can be accomplished concurrent with road construction shall be favored as a means of immediate protection of the water resource

EFFECTIVENESS: Moderate – High; reason, logical response, and observation).

IMPLEMENTATION: Erosion control objectives and detailed mitigation measures are developed using an interdisciplinary approach during the environmental analysis. The contract specifications and provisions for the road or trail shall reflect these measures and objectives. When standard specifications do not provide the degree of mitigation required, the ID team will develop special project specifications.

Prior to the start of construction, the Purchaser shall submit a schedule for proposed erosion control work as required in the timber sale contract standard specifications. The schedule shall include all erosion control items identified in the specifications. The schedule shall consider erosion control work necessary for all phases of the project. The Purchaser's construction schedule and plan of operation will be reviewed in conjunction with the erosion control plan to insure their compatibility before any schedules are approved. No work will be permitted on the project until the Contracting Officer has approved all schedules.

The Contracting Officer or Engineering Representative shall ensure that erosion control measures are implemented according to the approved schedule and are completed in an acceptable fashion. Field reviews and on-site inspection by the Line Officer and/or Forest Engineer will identify any additional erosion control measures required to protect the streams that were not recognized during planning or design. Necessary correction measures shall be implemented immediately through normal administrative channels.

The following items may be considered as erosion control measures when constructed in a timely manner. To maximize effectiveness, erosion control measures must be in place and functional prior to seasonal precipitation or runoff.

1. Measures to re-establish vegetation on exposed soils: This is usually accomplished by seeding suitable grass and legume species in conjunction with mulching and fertilization. In some situations, treatments may include tree seedling planting or sprigging of other woody species.
2. Measures which physically protect the soil surface from detachment or modify the topography to minimize erosion: These treatments may include the use of dust oil or gravel on the road travelways and ditches and the use of mulches, riprap, erosion mats, and terracing on cuts, fills, and ditches. Temporary waterbars on unfinished roads and trails can effectively reduce sedimentation.
3. Measures that physically inhibit the downslope movement of sediments to streams: These measures may include:
  - the use of slash filter windrows on or below fill slopes
  - baled straw in ditches or below fill slopes
  - catch basins at culvert inlets
  - sediment basin slash filter windrows may be used in live water drainages with low peak flows and where fish passage is not required
4. Measures that reduce the amount of soil disturbance in or near streams: These measures may include dewatering culvert installation or other construction sites, and immediate placement of permanent culverts during road pioneering. Temporary pipes should not be

allowed unless positive control of sedimentation can be accomplished during installation, use, and removal.

5. Measures that control the concentration and flow of surface and subsurface water: These may include insloping, outsloping, ditches, cross drains, under drains, trenches, and so forth.

#### **PRACTICE 15.06 - MITIGATION OF SURFACE EROSION AND STABILIZATION OF SLOPES** **PRACTICE 13.04 - REVEGETATION OF SURFACE DISTURBED AREAS**

OBJECTIVE: To protect soil productivity and water quality at culvert removal and culvert upgrade sites by minimizing soil erosion.

EXPLANATION: This practice is used to stabilize disturbed area surfaces with vegetation. The type of vegetation to use is determined by evaluating soil fertility and water holding capacity, slope, aspect, landtype characteristics, climate, vegetation species characteristics, and project objectives. Based on field observations and interpretations, the ID Team selects the type of vegetation that meets many or most of the management objectives for the area; range, wildlife, timber, fuels, minerals, and aesthetics. Grass or browse species (shrubs) may be seeded or planted between recently planted trees for erosion prevention, wildlife habitat enhancement, or other management needs.

EFFECTIVENESS: Moderate; reason, logical response, and observation

IMPLEMENTATION: The identification of disturbed areas and vegetation species mix are determined during the NEPA process. The responsible Line Officer assigns specific individuals to execute the project. Projects are subsequently monitored to assess the revegetation effectiveness, and need for follow-up action.

#### **PRACTICE 13.07 – PESTICIDE USE PLANNING**

#### **PRACTICE 13.08 – APPLY PESTICIDES ACCORDING TO LABEL AND EPA REGISTRATION DIRECTIONS**

#### **PRACTICE 13.09 – PESTICIDE APPLICATION MONITORING AND EVALUATION**

#### **PRACTICE 13.10 – PESTICIDE SPILL CONTINGENCY PLANNING**

#### **PRACTICE 13.11 – CLEANING AND DISPOSAL OF PESTICIDE CONTAINERS AND**

#### **EQUIPMENT PRACTICE 13.12 – PROTECTION OF WATER, WETLANDS, AND RIPARIAN AREAS DURING PESTICIDE SPRAYING**

#### **PRACTICE 13.13 – CONTROLLING PESTICIDE DRIFT DURING SPRAY APPLICATION**

#### **PRACTICE: 13.07 – PESTICIDE USE PLANNING**

OBJECTIVE: To incorporate water quality and hydrologic considerations into the Pesticide Use Planning Process.

EXPLANATION: The pesticide use planning process will be used to identify problem areas and the objectives of the project, establish the administrative controls, identify treatments and preventive measures, and incorporate the hydrologic considerations contained in SWCP 13.08 through 13.13. The NEPA process addresses these considerations in terms of impacts, mitigation measures, and alternative treatment measures. Project work and safety plans specify management direction.

Factors considered in pesticide selection are: purpose of the project, application methods available, target species, timing of treatment, pest location, size of treatment area, and need for repeated treatment.

Practicability of application considers: registration restrictions, form and method of application, topographic relief and areas to be avoided, and social acceptance of the project. The degree of risk considers: hazard to humans, method of application, transportation and handling hazards, carriers needed, and chemical persistence.



EFFECTIVENESS: High; reason, logical response, and observation

IMPLEMENTATION: The interdisciplinary team evaluates the project in terms of potential site response, potential social and environmental impacts, mitigating measures needed to protect water quality, and the need and intensity of monitoring and evaluation. The responsible Line Officer then prepares the necessary NEPA documentation, Project Plan and Safety Plan. Depending on the pesticide use, (FSM 2151.04) the Forest pesticide-use coordinator or Integrated Pest Management Working Group or regional IP-MWG reviews the documents along with the Pesticide-use Proposal, form FS-2100-2, and makes recommendations for or against approval of the project.

REFERENCES: NFMA; NEPA; FSM 2150 and 2323; State Hazardous Waste Management Plans; see references in "Best Management Practices" Definition 05—2 and 3.

### **PRACTICE 13.08 – APPLY PESTICIDES ACCORDING TO LABEL AND EPA REGISTRATION DIRECTIONS**

OBJECTIVE: To avoid water contamination by complying with all label instructions and restrictions.

EXPLANATION: Label directions for each pesticide are detailed and specific, and include legal requirements to use.

EFFECTIVENESS: High; reason and logical response.

IMPLEMENTATION: Constraints identified on the label and other legal requirements of application are incorporated into project plans and contracts. Responsibility for ensuring that label directions and other applicable requirement are followed rests with the Forest Supervisor or designate such as the Forest Pesticide Use Coordinator. For contracted projects, it is the responsibility of the Contracting Officer to ensure that label directions and all other requirements are followed.

REFERENCES: FSM 2150; Best Management Practice Definition (05—2 and 3).

### **PRACTICE 13.09 – PESTICIDE APPLICATION MONITORING AND EVALUATION**

OBJECTIVE: To determine and document that pesticides have been applied safely and to provide an early warning for any contamination of water or non-target areas or resources.

EXPLANATION: This practice provides feedback on the placement accuracy, application amount, and any water contamination that might occur from pesticide use to minimize or eliminate hazards to non-target areas or resources. Monitoring and evaluation methods include spray cards, dye tracing, and direct measurement of pesticide in or near water. Type of pesticide, equipment, application difficulty, public concern, beneficial uses, monitoring difficulty, availability of competent laboratory analysis and applicable federal, State, and local laws and regulations are factors considered when determining the monitoring and evaluation needs.

EFFECTIVENESS: High; reasoned and logical response.

IMPLEMENTATION: The monitoring and evaluation of pesticide application is a component of SWCP. The need for a monitoring plan is identified during the Pesticide Use Planning Process/NEPA process. If determined necessary, this monitoring and evaluation plan will consider the same items as in SWCP 11.02. A technical staff familiar in pesticide monitoring will evaluate and interpret the monitoring results in terms of compliance, State water quality standards, and adequacy of project specifications.

REFERENCES: FSM 2150; Best Management Practice Definition (05—2 and 3).

**PRACTICE 13.10 – PESTICIDE SPILL CONTINGENCY PLANNING**

**OBJECTIVE:** To reduce contamination of water from accidental pesticide spills.

**EXPLANATION:** A contingency plan that contains a predetermined organization and immediate actions to be implemented in the event of a hazardous substance spill will be prepared. The plan lists notification requirements, time requirements for notification, how spill will be handled, and who will be responsible for clean-up. Factors considered for each spill are: specific substance spilled, quantity, toxicity, proximity of spill to waters, and the hazard to life, property, and the environment.

**EFFECTIVENESS:** High; reasoned, logical response, and observation.

**IMPLEMENTATION:** The Pesticide Spill Contingency Plan will be incorporated into the Project Safety Plan. The NEPA process will provide the means for including public and other agency involvement in plan preparation. The plan will list the responsible authorities.

**REFERENCES:** SWCP 11.07; Pesticide Storage, Transportation, Spills, and Disposal Handbook

(FSH 2109.12); FSM 6740, 7442, 7443, and 7460; Oil and Hazardous Substances Pollution contingency Plan for EPA Region 8 and 10, 7/26/85; R1 and R4 Emergency and Disaster Plan; Best Management Practice Definition (05—2 and 3).

**PRACTICE 13.11 – CLEANING AND DISPOSAL OF PESTICIDE CONTAINERS AND EQUIPMENT**

**OBJECTIVE:** To prevent water contamination and risk to humans from cleaning and disposal of pesticide containers.

**EXPLANATION:** The cleaning and disposal of pesticide containers and equipment must be done in accordance with Federal, State, and local laws, regulations, and directives, and in a manner which will safeguard public health, the beneficial uses of water, aquatic organisms, and wildlife. Containers are rinsed three times, the rinse water applied on the project area as soon as practical, and the containers taken to the designated disposal site. Application equipment is also rinsed and rinse water applied to the project site before the equipment is moved from the project area.

**EFFECTIVENESS:** Moderate; reason, logical response, and observation

**IMPLEMENTATION:** The Forest or District Pesticide Use Coordinator will locate proper rinsing and disposal sites, and will arrange for container disposal in an approved disposal site when pesticide is applied by Forest Service personnel. When the pesticide is applied by a contractor, the contractor is responsible for proper clean-up and container disposal in accordance with label directions and Federal, State, and local laws.

**REFERENCES:** SWCP 11.07; Pesticide Storage, Transportation, Spills, and Disposal Handbook

(FSH 2109.12); FSM 6740, 7442, 7443, and 7460; Oil and Hazardous Substances Pollution contingency Plan for EPA Region 8 and 10, 7/26/85; R1 and R4 Emergency and Disaster Plan; Best Management Practice Definition (05—2 and 3).

**PRACTICE 13.12 – PROTECTION OF WATER, WETLANDS, AND RIPARIAN AREAS DURING PESTICIDE SPRAYING**

**OBJECTIVE:** To minimize the risk of a pesticide entering surface or subsurface waters or affecting riparian areas, wetlands, or other non-target areas.

**EXPLANATION:** When applying pesticides, an untreated buffer strip will be left alongside surface waters, wetlands, and riparian areas. Factors considered in establishing buffer strip widths beyond

minimums established by FSM and NEPA documents are: beneficial water uses, adjacent land use, rainfall, temperature, wind speed, wind direction, terrain, slope, soils and geology, vegetative type, and aquatic life. Other considerations include: persistence mobility, toxicity, and formulation of the pesticide, method of application, equipment used, spray pattern, droplet size, application height, and application pattern.

EFFECTIVENESS: High; reasoned, logical response, observation

IMPLEMENTATION: The interdisciplinary team and the Forest Pesticide Use Coordinator will identify and map protected areas during the NEPA process. Protection of untreated areas is the responsibility of the project supervisor for Forest Service applications and the Contracting Officer for contracted projects. The certified commercial applicators are briefed about location of protected areas. These areas are flagged or otherwise marked when necessary to aid in boundary identification.

REFERENCES: FSM 2526, 2527, 2245, and 2150; see references in Best Management Practice (05—2 and 3).

### **PRACTICE 13.13 – CONTROLLING PESTICIDE DRIFT DURING SPRAY APPLICATION**

OBJECTIVE: To minimize the risk of pesticide contaminating non-target areas.

EXPLANATION: Pesticide spray applications will be accomplished according to a prescription that specifies the following: areas to be left untreated, buffer areas, type of spray and associated materials, equipment and method to be used, droplet size, spray height, application pattern, flow rate, terrain, and weather. Hand spraying, with less associated risk, will have fewer application restrictions for drift than aerial spraying.

EFFECTIVENESS: High; reasoned, logical response, and observation

IMPLEMENTATION: The ID Team and the Forest or District Pesticide Use Coordinator prepare the prescription during the NEPA process. The Line Officer is responsible for designating a project supervisor who is responsible for ensuring the prescription is followed during application and for terminating application if the standards are exceeded.

REFERENCES: FSM 2150 and 2245; SWCP 13.12; Best Management Practice Definition (05—2 and 3). Other BMPs

- A spill cleanup kit will be available whenever pesticides (herbicides) are transported or stored.
- A spill contingency plan will be developed prior to all herbicide applications. Individuals involved in herbicide handling or application will be instructed on the spill contingency plan and spill control, containment, and cleanup process.
- Herbicide applications will only treat the minimum area necessary for control of noxious weeds.
- No spraying will occur when wind velocity exceeds 6 miles per hour or as specified on the label.
- Do not spray if precipitation is occurring or is imminent.
- Do not spray if air turbulence is sufficient to affect the normal spray pattern.

For additional information on SWCP's, including Objectives and Effectiveness, refer to Forest Service Handbook 2509.22 on file at the Supervisor's Office or the West Fork Ranger Station.